

## CLAIMS

What is the claimed is:

1. A method for counting and measuring a particles illuminated by a light beam and including the steps, wherein:

detecting said light beam by a light detecting system, including a chamber of said light detecting system, inside which a light beam along a light beam axis intersects a particle flow in an area of a light detection means, which is placed on said light beam axis, and wherein an intersection of said light beam and said particle flow is occurred on said light beam axis between a light beam source and said light detection means;

detecting said light beam, which is obstructed by different sizes of said particles of said particle flow, wherein an obstructed light beam has an appropriate intensity and an appropriate duration, determined by an appropriate particle size;

collecting said obstructed light beams by said light detection means, which transfers a detected signals to a processing system;

processing said detected signals, each of which has said appropriate duration, by said processing system.

2. The method of claim 1, wherein said light beam from a remote light source is transfered to said light detecting system by a fiber optic connecting means.

3. A method for counting and measuring particles, providing a timing processing of a plurality of detected signals, includes the steps of:

conversing each of said plurality of detected signals to a digital form pulse duration, which is determined by an appropriate particle size; thereby forming a plurality of different duration pulses;

strobing each of said plurality of different duration pulses by a strobe pulses, thereby forming a plurality of strobe pulse packages;

counting a quantity of said strobe pulses within each strobe pulse package of said plurality of strobe pulse packages;

selecting and sorting said strobe pulse packages by the same said quantity of said strobe pulses within said strobe pulse packages;

counting a quantity of an identical strobe pulse packages.

4. The method of claim 3, wherein said quantity of said strobe pulses within said strobe pulse packages contains an information about particle size.

5. The method of claim 3, wherein said quantity of said identical strobe pulse packages contains an information about particle quantity.

6. A device for counting and measuring a particles includes:

a light detecting system, including a chamber, a light beam, a particle flow, a tubular particle flow means and a light detection means, wherein said particle flow intersects said light beam on a light beam axis in an area of said light detection means, which is placed on said light beam axis, and wherein an intersection of said light beam and said particle flow is occurred on said light beam axis between a light beam source and said light beam means;

a processing system, including an analog-digital subsystem and a control subsystem.

7. The device of claim 6, wherein said analog-digital subsystem comprises a current-voltage conversion means connected to an amplifying means, which is connected to a analog-digital form pulse duration conversion means.

8. The device of claim 6, wherein said light detection means of said light detecting system is connected to a current-voltage conversion means of said analog-digital subsystem.

9. The device of claim 6, wherein said control subsystem comprises a microprocessor subsystem and a terminal means.

10. The device of claim 9, wherein said microprocessor subsystem is connected to said terminal means by a multiplexed bus.

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11. The device of claim 9, wherein said terminal means includes an external interface means and at least one of a display means, a printing means, a compact disc means, a floppy disc means, which are connected to each other by a multiplexed bus.

12. The device of claim 9, wherein said microprocessor subsystem comprises a strobe pulse generating means and a selecting, sorting and counting means, which are connected to a conjunction means, which is connected to a analog-digital form pulse duration conversion means of a analog-digital subsystem.

13. The device of claim 10, wherein said multiplexed bus is split on a data bus and an address bus, and a digital data exchange is provided by said data bus and said address bus.

14. A device for counting and measuring particles, including a remote light beam source connected by a fiber optic connecting means to a light detecting system, and wherein said light detecting system is electrically connected to a processing system, comprising an analog-digital subsystem electrically connected to a control subsystem, including a microprocessor subsystem electrically connected to a terminal means.

15. The device of claim 14, wherein said terminal means includes at least one of a displaying means, a printing means, a compact disk means, a floppy disc means electrically connected to each other.